Navy ManTech Program Impacting Key Platform Affordability

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Navy Manufacturing Portfolio

Vision: Integrated approach from S&T basic research through industrial base preparedness (6.1 through 6.3) to address manufacturing and affordability in manufacturing for DoN systems

6.1 – Manufacturing Science

Novel manufacturing technologies and control methods to produce critical new and replacement parts on-demand

- Cyber-Enabled Manufacturing Systems for Direct Digital Manufacturing (CeMS-DDM)

6.2 – Mfg Applied Research

Scale-up and development of emerging manufacturing process innovations for product-related S&T programs (FNCs) to reduce cost of fielding new capabilities

- Azimuth and Inertial MEMS Disk Resonator Gyros
- Fuel Cell Producibility

6.3 - Mfg Technology (ManTech) Program

Acceleration of manufacturing technologies to reduce total ownership costs for DoN systems. Focused on acquisition cost reduction for 5 key acquisition platforms.

Manufacturing Technology – 6.3 PE (ManTech)

- **Mission: Industrial Preparedness**
  - **Development of enabling manufacturing technology -- new or improved processes -- for implementation on DoD weapon system production lines**
  - **DoD 4200.15 states investments should:**
    - Transition emerging S&T results to acquisition programs
    - Improve industrial capabilities in production, maintenance, repair and industrial base responsiveness
    - Advance manufacturing technology to reduce cost, improve performance, and responsiveness

- **Funding: FY16 – approx. $57M**

ManTech 6.3 – What It Can and Cannot Be Used For

ManTech Requirements (DoD 4200.15, E2.1.3)

- Well-defined DoD requirement for the technology
- Technology demo'd in lab environment
- Can be delivered in time to meet the requirement
- Results applicable to more than one weapon system, component, or end item
- Specific plan to transition, implement, and insert results
- Potential for multiple Component-sponsored investments identified
- Investment not duplicative of other activities, both within and outside ManTech

ManTech 6.3 – What It Can and Cannot Be Used For

ManTech Cannot Be Used For:

- Technology push, advancing general science
- Routine application of existing technology
- Implementation of manufacturing technology beyond the first-case application
- Product design (design for production analysis ok)
- Material development or optimization
- Purchase of off-the-shelf equipment (unless a minor portion of the investment and required to establish the first-case application of the ManTech deliverable)
- Purchase of capital equipment/facilities
- Component/system certification or qualification testing
- Technology proprietary to one company

ManTech Investment Strategy

- **Addressing affordability (acquisition and life-cycle)**

Affordability Initiatives

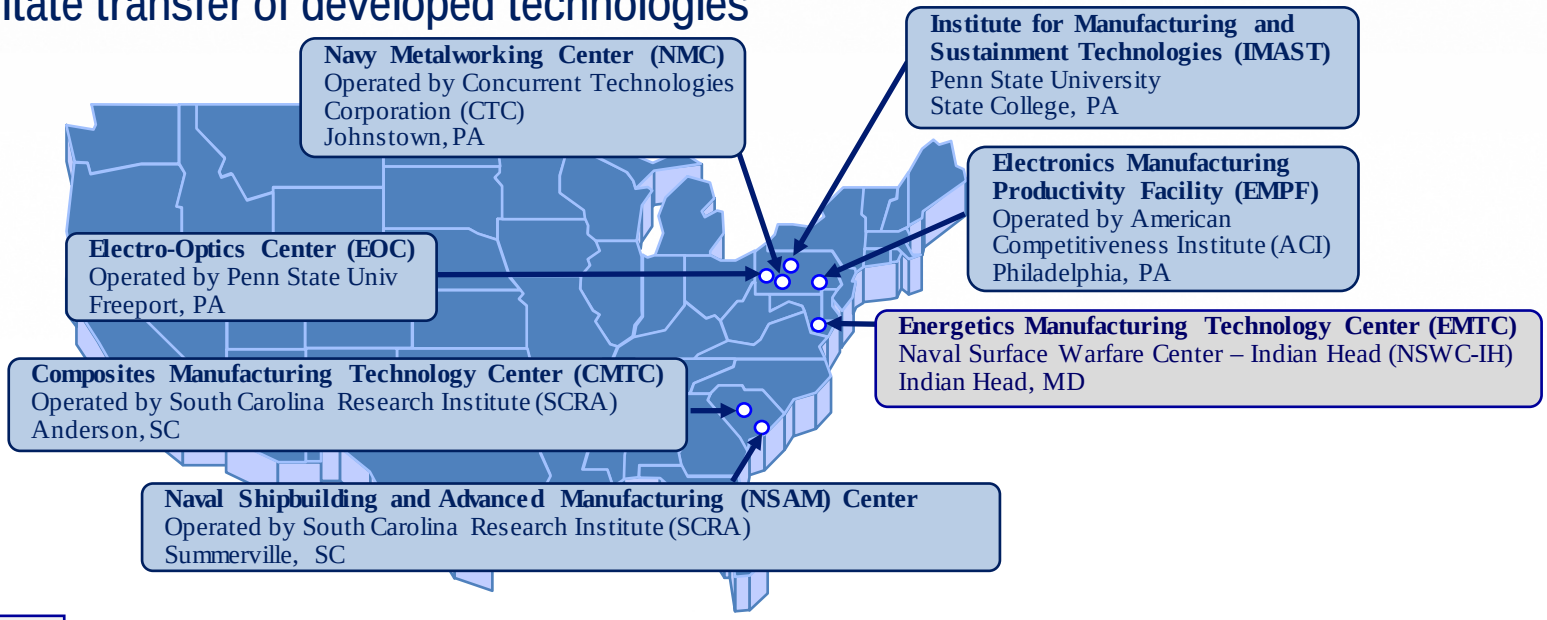
	**PEO (Subs)** *VIRGINIA ORP*		**PEO (Ships)** *DDG 51 Class*		**PEO (Carriers)** *CVN 78 Class*		**PEO (JSF)** *F-35*		**PEO (A)** *CH-53K*

- **Investment Strategy focused on largest DoN acquisition programs as determined by:**
  - Total acquisition funding
  - Stage in acquisition cycle (remaining years of acquisition)
  - Platform cost reduction goals
  - Cost reduction potential for manufacturing

ManTech - making a significant impact on affordability, highlighted by recent implementations and cost savings

Centers of Excellence

- Executed through Centers of Excellence (COEs)
  - Execute projects; manage project teams
  - Collaborate with acquisition program offices / industry to identify and resolve mfg issues
  - Develop and demo mfg technology solutions for identified Navy requirements
  - Facilitate transfer of developed technologies



COE Recompetes
- **Metals – in source selection at ONR**
- **Composites – in source selection at ONR**
- **Electronics in source selection at ONR**

Centers of Excellence – Core Competancies

- Metalworking –
  - Simulation & Modeling
  - Materials Processing and Fabrication
  - Near Net Shape Fabrication (including DDM)
  - Surface Treatment
- Institute of Mfg & Sustainment Tech (iMAST / REPTECH) –
  - Laser Processing
  - Materials and Composites Processing
  - Manufacturing Systems
  - Systems and Operations Automation
  - Sustainment / Repair Technologies

Greg Woods – Prog Officer

- Electronics (EMPF) –
  - Automated Packaging
  - RF Technology
  - Wide Band Gap Technology
  - Environmental
- Electro-Optics (EOC) –
  - Focal Plane Array & Sensor Technology
  - Fiber Optics & Photonics
  - Carbon Based Electronics
  - Window and Dome Technology
  - Lasers and Laser Weapon Systems

Rich Henson – Prog Officer

- Composites (CMTC) –
  - Automated Fiber Placement
  - Out of Autoclave Composites
  - Thick-Walled Composites
  - Vacuum Assisted Resin Transfer Molding
  - Controlled Volume Molding for High Temp Composites
  - Manufacturing Automation for Polymer Composites
  - Composites for Very Large Format Radomes

Neil Graf – Prog Officer

- **Shipbuilding / Advanced Mfg (NSAM Center) –**
  - Shipbuilding Technology
  - Process / Fabrication Optimization
  - Digital Work Instructions
  - Modeling
  - Spatial Scheduling
  - Inspection Technology

Paul Huang – Prog Officer

- Energetics (EMTC) –
  - Propellants
  - Munitions

Chuck Painter
NSWC – Indian Head

Focus on Implementation

- **ManTech, alone, cannot ensure implementation …**
  - Need ONR / COEs / industry / Program Office all working together
- **Technology Transition Plans (TTPs) for each project**
  - Upfront agreement by all parties as to required actions / responsibilities from technology development through implementation (includes required resources for implementation)
  - Signed by Navy ManTech, COE Director, Industrial Facility Management, Program Office, and, if appropriate, the government technical authority
- **Implementation Risk Assessment / Management Process**
  - Recognize risks to implementation upfront and assess / manage through project execution
  - Risks discussed during Program Reviews to ensure ManTech on same page as acquisition / industry stakeholders

ManTech goal is technology implementation

Industry Role

- **Participate in annual planning effort with COEs**
  - Identify manufacturing issues COEs can help address
  - Scope out / refine candidate projects
  - Provide input to ManTech planning deliverables
  - Provide input to Project Plan
  - Ensure commitment to implement - identify implementation requirements and identify resources
  - Help develop project Technology Transition Plan (TTP)
- **Obtain management signature on Technology Transition Plan (TTP)**
- **Execute project with COE**
  - Execute per Project Plan
  - Participate in project meetings / discussions as required
- **Participate in semi-annual platform Program Reviews**
  - With COE, brief project
- **Provide input on affordability / implementation / banked savings**

Active industry participation critical for success

Navy ManTech Web Site

- http://www.onr.navy.mil/en/Science-Technology/Directorates/Transition/Manufacturing-ManTech.aspx
  - Project Book (snapshot of all projects active during past FY)
  - Points of Contact Directory

- **Navigation** – www.onr.navy.mil; click on "03T Transition" under Directorates heading; and click on "Manufacturing Technology"